

P-1021A

We Claim

1. An irreversible humidity indicator card, comprising
an intermediate carrier member, containing one or
more holes passing through the intermediate carrier member,
5 a water vapor permeable, clear, first outer layer
secured to a front side of the intermediate carrier member,
a deliquescent material contained within the holes
in the intermediate carrier member,

a dark colored, absorbent sheet material placed
10 against a back side of the intermediate carrier member,
which material covers the holes in the intermediate carrier
member, and

a second outer layer, secured to the back side of
the intermediate carrier member, which covers the colored,
15 absorbent sheet material.

2. The irreversible humidity indicator card of Claim
1, wherein the water vapor permeable, first outer layer is
coated on one side with an adhesive material.

3. The irreversible humidity indicator card of Claim
20 1 wherein the second outer layer is comprised of a water
vapor permeable material.

4. The irreversible humidity indicator card of Claim
1 wherein the second outer layer is coated with an adhesive
material.

25 5. The irreversible humidity indicator of Claim 1

P-1021A

wherein the second outer layer completely covers the back side of the intermediate carrier member.

6. The irreversible humidity indicator card of Claim 1 wherein the deliquescent material is selected from the group consisting of a single deliquescent salt, a mixture of two or more deliquescent salts, a mixture of a single deliquescent salt with one or more non-deliquescent salts, a mixture of two or more deliquescent salts and one or more non-deliquescent salts, a mixture of a single deliquescent salt with one or more non-ionic compounds and a mixture of two or more deliquescent salts with one or more non-ionic compounds.

7. The irreversible humidity indicator card of Claim 1 further comprising a plurality of deliquescent materials, each of which liquifies at a different, predetermined humidity level.

8. The irreversible humidity indicator card of Claim 1 wherein the clear, water vapor permeable first outer layer has a vapor transmission rate of at least about $1\text{g}/(\text{m}^2\cdot\text{day})$.

9. The irreversible humidity indicator card of Claim 1 wherein the colored, absorbent sheet material is produced from a colored blotting sheet.

10. The irreversible humidity indicator card of Claim 1 wherein the second outer layer covers the back side of the intermediate carrier member.

P-1021A

11. The irreversible humidity indicator card of Claim 1 wherein the second outer layer is secured at one or more of its edges to the clear, water vapor permeable, first outer layer.

5 12. An irreversible humidity indicator card, comprising

 an intermediate carrier member, containing one or more holes passing through the intermediate carrier member,

 a water vapor permeable, clear, first outer layer
10 secured to a front side of the intermediate carrier member,

 a white deliquescent material contained within the holes in the intermediate carrier member,

 a dark colored, absorbent sheet material placed against a back side of the intermediate carrier member,
15 which material covers the holes in the intermediate carrier member, and

 a second outer layer, secured to the back side of the intermediate carrier member, which covers the colored, absorbent sheet material.

20 13. An irreversible humidity indicator card, comprising

 an intermediate carrier member, containing one or more holes passing through the intermediate carrier member,

 a water vapor permeable, clear, first outer layer
25 secured to a front side of the intermediate carrier member,

P-1021A

a deliquescent material contained within the holes in the intermediate carrier member, wherein the deliquescent material does not include a dye material,

5 a dark colored, absorbent sheet material placed against a back side of the intermediate carrier member, which material covers the holes in the intermediate carrier member, and

10 a second outer layer, secured to the back side of the intermediate carrier member, which covers the colored, absorbent sheet material.

14. A process of manufacture of a humidity indicator card comprising

15 preparing an intermediate carrier member containing one or more holes, a front side and a back side, securing a clear, water vapor permeable, first outer layer to the front side of the intermediate carrier member,

20 placing a deliquescent material within the holes of the intermediate carrier member,

covering the holes of the carrier member on the back side of the intermediate carrier member with a dark colored absorbent material, and

25 covering the colored absorbent material and the back side of the intermediate carrier member with a second outer layer.

P-1021A

15. A process of manufacture of a humidity indicator card comprising

preparing an intermediate carrier member containing one or more holes and a front side and a back side,

securing a clear, water vapor permeable, first outer layer to the front side of the intermediate carrier member,

placing a deliquescent material within the holes of the intermediate carrier member,

securing a dark colored, absorbent sheet material to a second outer layer, and

securing the second outer layer with attached colored absorbent sheet to the back side of the intermediate carrier member, wherein the colored absorbent sheet material covers the holes in the intermediate carrier member.

16. The process of Claim 14 wherein the deliquescent material does not include a dye material.

17. The process of Claim 15 wherein the deliquescent material does not include a dye material.

18. The irreversible humidity indicator card of Claim 1 wherein the dark colored, absorbent sheet material is colored with a dark color, such as red, green or black.

19. The irreversible humidity indicator card of Claim 1 wherein the color of the absorbent sheet material shows

P-1021A

through the openings in the intermediate carrier member and the clear, first outer layer when the deliquescent material melts and is absorbed by the absorbent sheet material.

5 20. The irreversible humidity indicator card of Claim 12 wherein the dark colored, absorbent sheet material is colored with a dark color, such as red, green or black.

21. The irreversible humidity indicator card of Claim 13 wherein the dark colored, absorbent sheet material is colored with a dark color, such as red, green or black.

10